



SCORPIUS



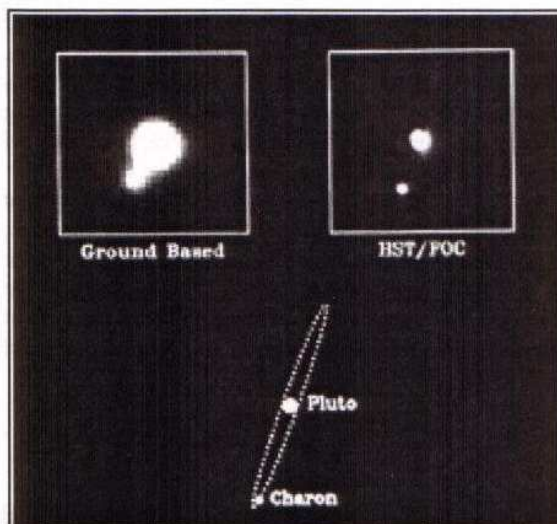
The Journal of the
Morningside Peninsula Astronomical Society Inc.

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Volume XV, No. 4 (October 2006)

The Morningside Peninsula Astronomical Society (formerly the Astronomical Society of Frankston) was founded in 1969 with the aim of fostering the study of Astronomy by amateurs and promoting the hobby of amateur Astronomy to the general public. The Society holds a General Meeting each month for the exchange of ideas and information. Regular observing nights, both private and public, are arranged to observe currently available celestial objects. For decades the Society has provided *Astronomy on the Move* educational presentations and observing nights for schools and community groups exclusively in the Peninsula and surrounding regions to Moorabbin, Dandenong & Tooradin.

Pluto Downgraded No Longer a Planet



Mars rover's work extended



Plus :

Rare lunar rock found in Antarctica
Pluto has three known Moons
Plenty to view in Sagittarius
Dimmest deep space stars found

October field nights and events

6th October – Public viewing night at Briars
10th October – Derinya Park Primary night at the Briars
14th October – Presidents Birthday Bash
18th October – General Meeting at the Peninsula School

Astro News

Pluto Downgraded

Recently in Prague, thousands of astronomers gathered together for the general assembly of the International Astronomical Union. And amidst the debates about new scientific theories and the announcements of exciting discoveries, astronomers decided to change the number of planets in the Solar System.

This came about when a resolution passed that a planet should hereon be defined as a spherical object that orbits a star, and which has cleared the neighbourhood around it. The number of planets in the Solar System consequently drops from nine to eight; Pluto has now been demoted, and joins a variety of other small objects, such as Ceres, Sedna and Orcus, in a new yet-to-be-named category of 'dwarf planets'.



It is not the first time astronomers have downgraded a planet. In 1801, Ceres was proclaimed a planet when it was discovered, but about 50 years later it was considered a large asteroid. Last year, astronomers discovered a dwarf planet — nicknamed Xena — that was slightly bigger than Pluto. This forced a decision. Either Xena was a proper planet, or Pluto was a dwarf planet. The decision by the union, which for the past two weeks has been meeting in Prague, was not without controversy. Last week, a union committee urged a vote the other way. This would have meant Pluto, Xena and two other dwarf planets — Ceres and Charon — would have been classified as proper planets, bringing the solar system's total to 12.

The new definition of a planet is simple and sensible. A celestial body can only be round if it is large enough for its gravity to pull it into a spherical shape. This excludes the vast majority of

Solar System bodies, most of which are small misshapen asteroids. The requirement that a planet orbit a star also makes sense, since some of the moons of Jupiter and Saturn are otherwise big enough to qualify as planets. Finally, the key criterion that has demoted Pluto, that a planet must be able to clear out its neighbourhood, is based on our understanding that a newly forming planet around a young star clears out a large area around it as it sweeps up surrounding debris. While the first eight planets all rule their orbits, Pluto follows an unusual elongated path that crosses the orbit of Neptune. Clearly it does not make the cut.

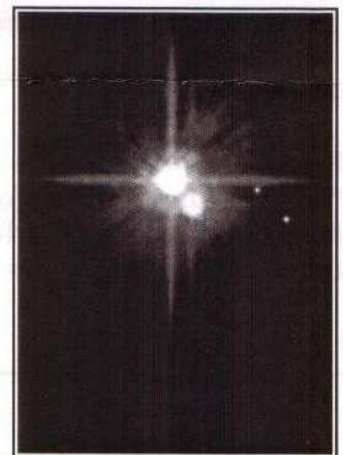
Many people feel very passionate about Pluto's status as a planet, and will be disappointed or disbelieving that astronomers have voted to change this. But Pluto's status as a planet was only ever a historical accident. For decades, astronomers had been convinced that the orbits of Uranus and Neptune hinted at the gravitational influence of a massive, more distant body, "Planet X". When Clyde Tombaugh discovered Pluto in 1930, this exciting new object was quickly anointed as the ninth planet, before much was even known about it. But subsequent study showed that Pluto is puny, barely a quarter the size of our own Moon. And we now know that Planet X never existed, the product of some subtle errors in some century-old mathematical calculations.

Pluto has three moons

The tiny, distant and frozen planet Pluto, for 30 years believed to have just one moon, has two more satellites, US astronomers confirm. Their find has been confirmed, after spending six months analysing images from the Hubble Space Telescope and publishing their work in today's issue of the journal *Nature*. Pluto's first known satellite Charon was not discovered until 1978. With a diameter of 1200 kilometres, it is half that of Pluto, abnormally large for a moon in relation to its planet.

The two additional orbiting satellites, P1 and P2, are travelling outside the orbit of Charon and are tiny by comparison, say scientists led by Dr Hal Weaver of Johns Hopkins University. P1, the more distant of the two from Pluto, has a diameter of between 60 and 165 kilometres while P2 is 20% smaller. "Although definitive orbits cannot be derived, both new satellites appear to be moving in circular orbits in the same orbital plane as Charon with orbital periods of about 38 days for P1 and 25 days for P2," they write. Charon's density is also very similar to that of Pluto's, which appears to back theories that the planet whacked into a large space object, causing a large chunk to break off and eventually be enslaved as a satellite. P1 and P2 may have resulted from the same collision, says Dr Alan Stern of the Southwest Research Institute in the same issue of *Nature*.

The discovery of the two new members of Pluto's family make it the only object in the Kuiper belt, a vast region of rock and ice beyond Neptune that contains debris from the formation of the solar system, known to have multiple satellites, the scientists say. The scientists also expect Pluto's small moons to generate debris rings of their own, from surface impacts. "[This] would open up a whole new class of study because it would constitute the first ring system seen around a solid body rather than a gas giant planet," says Stern's colleague and co-author Dr Bill Merline. Pluto was only discovered in 1930 and because of its vast distance from Earth has remained largely enigmatic ever since.



Mars rovers will keep on roving

Despite being years past their warranty date, NASA's twin Mars rovers have been pressed into duty for another year. Mars Global Surveyor and Odyssey orbiters have also been given 2-year mission extensions. Spirit and Opportunity are doing surprisingly well, despite roaming the Martian landscape for more than 31 months. During this fourth mission extension, the rovers will return to the Martian spring and summer, when they get increased sunlight to power their solar panels.

The team operating the twin Mars Exploration Rovers, Spirit and Opportunity, since January 2004, won approval for an additional year of exploration. NASA funded the extensions on recommendations from an outside panel of scientists. NASA also is adding two more years of operations for Mars Global Surveyor, which has been orbiting Mars since 1997, and the Mars Odyssey orbiter, at the red planet since 2001.

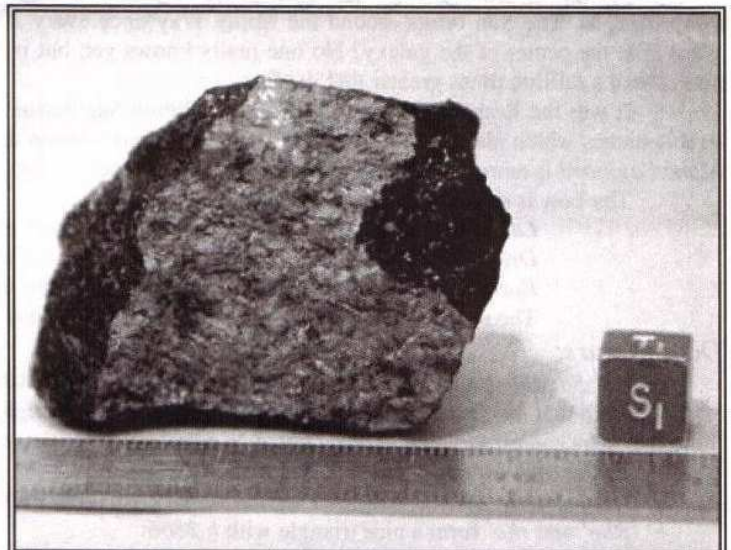
Both rovers are still healthy, more than 31 months into what was originally planned as a three-month exploration of their landing areas. Provided they remain operable, their fourth mission extension will take them into Martian spring and summer, increasing their solar-energy supply and daily capabilities. Spirit has been studying its surroundings from a stationary, sun-facing tilt for several months. "As we get into the Martian spring, Spirit will resume exploring the inner basin of the 'Columbia Hills,'" said Dr. Bruce Banerdt, rover project scientist at NASA's Jet Propulsion Laboratory, Pasadena, Calif. Opportunity will spend the extension at "Victoria Crater."

Rare lunar rock found in Antarctica

A team of geologists from Case Western Reserve University in Cleveland spent 6 weeks on an ice field in Antarctica in 2005 searching for meteorites. Their efforts were rewarded December 11, 2005, when they found a rare lunar meteorite. The search team, part of the U.S. Antarctic Search for Meteorites program discovered the 5-ounce (142 grams), golf-ball-size meteorite on the Miller Range of the Transantarctic Mountains, located about 460 miles (750 kilometers) from the South Pole. Officially known as MIL 05035, the Moon rock is unlike the other 237 meteorites collected during the 2005-2006 Southern Hemisphere summer.

Scientists at NASA's Johnson Space Center and the Smithsonian Institution's National Museum of Natural History confirmed the unusual specimen is a coarse-grained type of gabbro similar to basaltic lava typically found in the lunar maria. What separates MIL 05035 from typical lunar meteorites is its very large crystals and the presence of maskelynite, a type of glass that forms during an intense shock like an impact event. The meteorite's large crystals suggest this Moon rock slowly cooled deep inside the lunar crust.

The only other meteorite known to be similar in composition to MIL 05035 is Asuka 881757, which is among the oldest known lunar basalt specimens. Like MIL 05035, Asuka 881757 was also found in the Antarctic. Scientists think MIL 05035 is also very old because of its highly shocked nature.



Dimmest deep space stars discovered

In an announcement that sheds light on the origin and evolution of the universe, astronomers report the Hubble Space Telescope (HST) has imaged the faintest stars ever seen in a globular cluster. Globular clusters, dense, spherical star formations containing hundreds of thousands of stars, are among the universe's oldest objects. These faint stars will act as clocks, explains Harvey Richer, leader of the research team that made the discovery. Determining the stars' ages will allow astronomers to pinpoint exactly how and when globular clusters formed. "It's a test of the age of the universe," says Richer. "We're learning about the timeline of the formation of nature."

For approximately 5 hours a day for a month, Richer and his colleagues used HST to survey globular cluster NGC 6397 for red and white dwarfs. The team picked NGC 6397 because it's the second closest globular cluster to the solar system at 8,500 light-years away. Moreover, judging by the lack of heavy elements in the stars' atmospheres, NGC 6397 is one of the oldest globular clusters. "The main scientific driver for this project was to use the surveyed white dwarfs as an age diagnostic," explains Richer. White dwarfs are burned-out stellar corpses that have exhausted their nuclear fuel. As they age, white dwarfs cool in a predictable way, making them accurate timekeepers. The team is still calculating NGC 6397's age. "It's not going to be far from 12 billion years," assures Richer. Because the team refined the technique of using white dwarfs as time indicators, future attempts will produce more accurate results.

Hubble also surveyed NGC 6397's population of red dwarfs, or very old, low-mass stars that can burn hydrogen in their cores. Theory predicts that the least massive red dwarfs are about 8 percent as massive as the Sun. Anything lower than that would become a brown dwarf, or failed star, and would slowly fade away to darkness. The cut-off between red and brown dwarfs has never been experimentally observed — until now. Richer's team found NGC 6397's faintest red dwarfs are exactly as massive as theory predicts. "We think we've located the onset of the gap between main sequence stars and brown dwarfs," says Richer.

Skywatchers Events

October

7 th	Full Moon	22 nd	New Moon
14 th	Moon last quarter	24 th	Jupiter 5°N of Moon
16 th	Saturn 2°S Saturn of Moon	24 th	Mercury 1.4°N of Moon
21 st	Orionids meteor shower peaks	30 th	Moon first quarter

Sagittarius – The Archer

Sagittarius is a centaur, with the torso of a man atop the body of a horse. Unlike the wise and peaceful centaur Chiron (Centaurus), Sagittarius is aiming his giant bow at his neighbor, Scorpius. While this is a very large constellation, its stars are relatively faint and most people easily recognize just the central figure which resembles a teapot with a lid, handle, and spout. More than a dozen objects reside in Sagittarius, including globular clusters. Recently, astronomers have discovered a small galaxy in Sagittarius that is crashing through the Milky Way.

Exactly who is Sagittarius? The Mediterranean people viewed him as Enkidu, the close friend of Gilgamesh, believed to be represented by Orion. Greek mythology associates Sagittarius with Crotus, the son of the goat-god Pan and Eupheme, the nurse of the Muses. He grew to be a skilled hunter, as well as a man with an artistic soul. The Muses, with whom he was raised, begged Zeus to honor him with a constellation equal to his great talents.

The center of our galaxy, the Milky Way, lies in the direction of Sagittarius. It is believed to be about 29,000 light years away from us. The Sun orbits around the Milky Way once every 200 million years at a speed of 220 kilometers per second! What is at the center of the galaxy? No one really knows yet, but it appears that there might be a giant black hole there with a mass about a million times greater than the Sun.

It was the Romans who named the constellation Sagittarius ("sagitta" is Latin for 'arrow'), although several stars carry Arabic names which identify just which portion of the constellation they represent:

Alpha Sagittarii is named "Rukbat": (Rukbat al Rami=Archer's knee), and *beta Sgr* is "Arkab" (Tendon).

The bow is outlined by three stars:

Lambda Sgr: "Kaus Borealis" = the northern (part of the) bow

Delta Sgr: "Kaus Meridionalis" = the middle (part of the) bow

Epsilon Sgr: "Kaus Australis" = the southern (part of the) bow

The arrow tip is *gamma Sgr* ("Al Nasl" = the point)

Double stars:

Nu¹ Sagittarii is a fixed binary with faint companion: 5.0, 10.8; PA 97° and separation 2.5".

Note that *nu¹* and *nu²* are not gravitationally bound, although they form an optical binary of some historical importance: these two stars caused Ptolemy to write about "a nebulous double star" long before Herschel coined the term "binary".

54 Sgr also catalogued as *h 599* is a multiple system:

AB: 5.4, 12; PA 274°, separation 38"; AC: 8.9; PA 42°, 45.6". The primary has a reddish tinge to it.

Rho¹ and *rho²* form a nice triangle with *h 2866*:

AB: 8.0, 8.3; 53°, 23.4" AC: 8.6; 137°, 24".

Deep Sky Objects:

Sagittarius has fifteen Messier objects, far more than any other constellation. However these fifteen are of varying quality. Three are spectacular, and a number of others are bright and impressive but a number are quite disappointing. While they are all included here, due to space limitations the less interesting objects have been omitted from the constellation graphic.

M8 (NGC 6523) is a marvellous diffuse nebula known as the "Lagoon Nebula".

This naked eye object is considered to be from 3500 to 5100 light years away. A dark band divides the nebula in two. While easily spotted with the eye, there is a wealth of detail that can only be brought out with at least a medium sized scope.

The open cluster NGC 6530 is contained in the eastern part of the nebula. The young cluster (only several million years old) is nicely contrasted against the nebula.

The Lagoon Nebula is five degrees west of *lambda Sgr* and one degree north.

M17 (NGC 6618), the "Swan Nebula" or the "Omega Nebula", and occasionally known as the "Horseshoe Nebula".

This nebula resembles the tail of a comet: a bright diffuse trail of light with a bit of a hook on it. It is about 5000 light years away. The Swan Nebula is five degrees north of *mu Sgr*, and one degree east.

M18 (NGC 6613) is an open cluster of about twenty stars; a rather undistinguished member of the Messier group found one degree south of M 17.

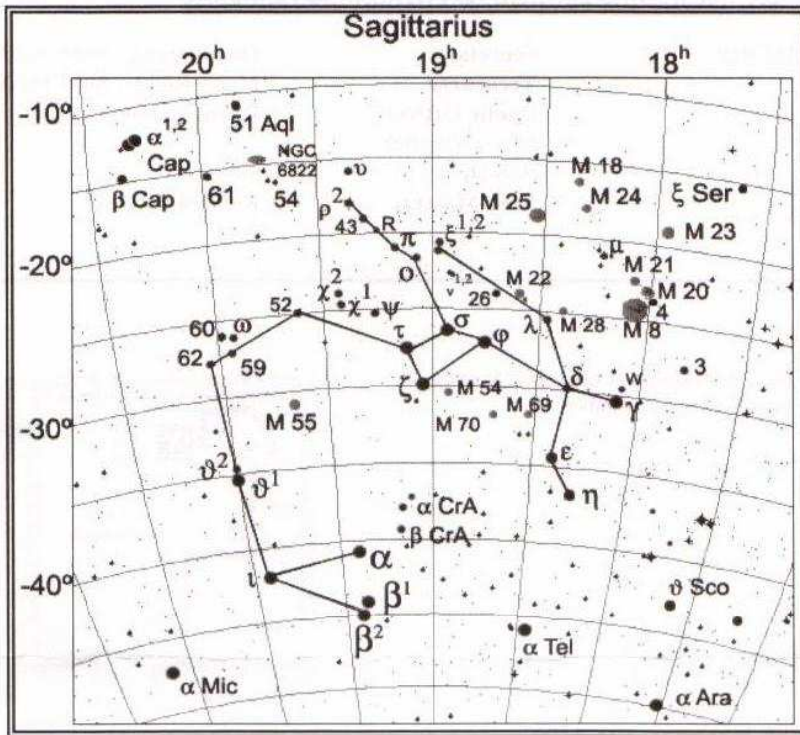
M20 (NGC 6514), the "Trifid Nebula", is another delight, but only with larger scopes, which will bring out the three dark lanes familiar on photographs. In the same field is M 21, an open cluster of about fifty stars.

The Trifid Nebula is found 1.5 degrees north of the Lagoon Nebula.

M21 (NGC 6531) is a rather unspectacular open cluster 0.7 degrees NW of M20.

M22 (NGC 6656) is a fine globular cluster, a highly concentrated group of perhaps five hundred thousand stars in total, about 20,000 light years away. It lies two degrees NE of *lambda Sgr*.

M23 (NGC 6494) is a pleasantly scattered open cluster of about 120 stars located four degrees northwest of *mu Sgr* and one degree north.

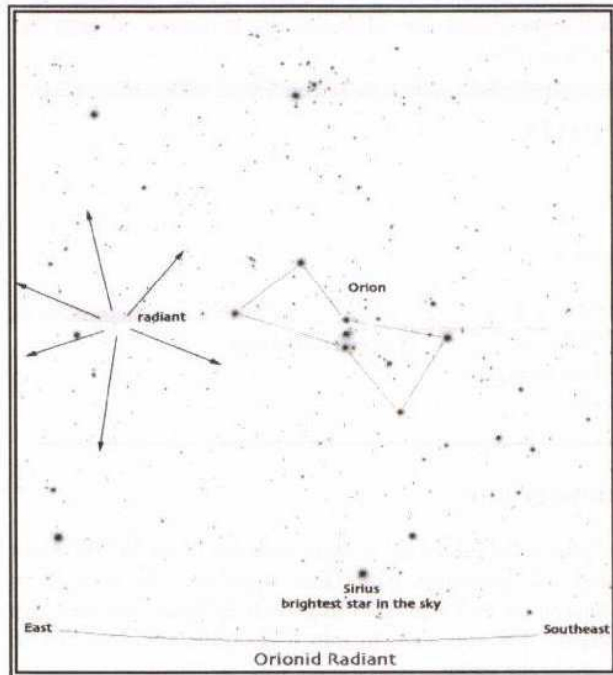


faint; the larger the scope the better. This irregular dwarf galaxy is about 1.7 million light years away, making it one of the closest of its kind. It's in the same region as 54 Sgr, six degrees northeast of *rho* Sgr.

M24 (no NGC) is a bright "star cloud", which contains the open cluster NGC 6603.
M25 (no NGC) is a bright open cluster but without much interest.
M28 (NGC 6626) is a bright condensed globular cluster, much less spectacular than *M22* but a fine object none the less. It is one degree NW of *lambda* Sgr.
M54 (NGC 6715) is a globular cluster, difficult to resolve.
M55 (NGC 6809) is another globular cluster, less concentrated than those previously mentioned. It is about 20,000 light years away, and lies between *zeta* Sgr and *theta* Sgr: seven degrees east of *zeta* and one degree south.
M69 (NGC 6637) is a globular cluster of little merit.
M70 (NGC 6637) is another globular cluster, two degrees east of *M69*. It too is of little interest.
M75 (NGC 6637) is the faintest of globular clusters in this constellation.
 NGC 6822, "Barnard's Galaxy". Very

The Orionids Meteor Shower

The Orionids rank among the year's most watched meteor showers. This is one of two showers, along with the eta Aquarids of early May, associated with the famous Comet Halley, making it an appropriate time to reflect on the contributions of Sir Edmund Halley. Amongst a lifetime of accomplishment, Halley predicted the return of the famous comet that bears his name, and was also the first to suggest that meteors might have an extraterrestrial existence after observing a fireball in 1686. Both insights were proven to be true long after Halley's death in 1742; today both can be observed simultaneously in the flash of a single Orionid. Indeed, this is the closest thing we'll get to Halley's Comet itself until its next return in 2061.



Comet Halley has a retrograde orbit which is steeply inclined to the ecliptic. The steep inclination means Halley doesn't come that close to Earth as it crosses the plane of its orbit on both the inward and outbound portions of each perihelion passage, with closest approaches of 22 million and 10 million km (0.15 and 0.065 astronomical units) respectively, suggesting Earth passes in two places through the outskirts of an extremely diffuse meteoroid stream left in the comet's wake. However, Halley's intersections of Earth's orbital plane were not always so distant, and since it has been extensively observed over the millennia this comet's orbital evolution is relatively well understood. A calculated orbit of the comet in 391 BCE compares very closely with the orbital path of the Orionid stream today. The stream itself seems to be very stable with meteoroids dispersed throughout its orbit, although it may best be considered as a bundle of filaments each in similar, stable orbits. These small scale belts result in variations in observed rates during each year's shower, an unusual feature shared with the eta Aquarids.

Because this shower is on the inbound portion of the meteoroid stream, the Orionids are much more a night-time shower than their kissing cousins the eta Aquarids. The shower radiant in northeastern Orion (to the upper left of the famous red giant star Betelgeuse in the warrior's left shoulder) rises in Alberta between 10 and 11 p.m., and passes due south around 6 a.m. Meteor counts can be expected to gradually rise throughout this period. Because of the retrograde nature of their orbit, the meteoroids slam into Earth roughly head-on at very high speed of 66 km/s. This is very comparable to the eta Aquarids speed of 65 km/s, the difference presumably owing to Earth's own increased speed closer to perihelion in early January. Although it varies somewhat from year to year, the Zenith Hourly Rate (ZHR) is typically around 20, meaning a single observer under dark, clear skies might experience about 10 meteors per hour. The Orionids have a reputation of being colourful; observers are encouraged to be mindful of this aspect, and if possible keep a record of their impressions.

Office bearers of the Mornington Peninsula Astronomical Society

President	: Peter Lowe – 0419 355 819	Secretary	: Don Leggett - 5985 4927
Vice President	: Ian Sullivan	Treasurer	: Marty Rudd – 5977 8863
Editor	: Marty Rudd	Public Officer	: Rhonda Sawosz
Committee	: Peter Skilton		
	: Terry Ryan		
Librarian	: Andrew Thornton	Web Master	: Richard Pollard
Phone Contact	: Peter Skilton		

Meetings

Meeting Venue: *Peninsula School*, Wooralla Drive, Mt. Eliza (Melways map 105/F5) in the Senior School at 8pm on the 3rd Wednesday of each month except December.

Phone: 0419 253 252

Mail: P.O. Box 596, Frankston 3199, Victoria, Australia

Internet: <http://www.mpas.websyte.com.au>

E-mail: skywatch@iprimus.com.au

Subscriptions

Full Member	\$50.00	Family	\$65.00
Pensioner	\$45.00	Family Pensioner	\$60.00
Student	\$35.00	Newsletter Only	\$22.00

(Please send payments to the MPAS, PO Box 596, Frankston, Vic, 3199)

Loan Equipment

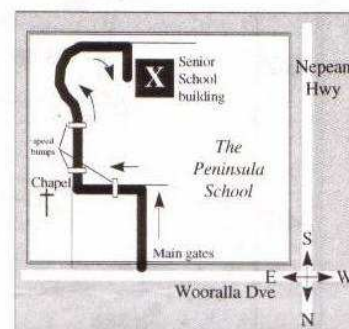
The Society has an 8-inch reflector, 80mm refractor and binoculars available for loan.

Contact Kevin Rossiter or a committee member to arrange the loan of equipment.

The Society also has books and videos for loan from its library, made available during General Meetings.

Viewing Nights

Members only: Any night, at The Briars, Nepean Hwy, Mt. Martha, starting at dusk. If you would like to know if others are observing at the site, then call the society's site mobile on (0408) 127 443. Members visiting The Briars for the first time must contact John Cleverdon on 5987 1535 if they need help in getting to the site. Upon arrival at the site, remember to sign the attendance book in the observatory building and verify that the mobile is turned on.



Future Events

- 6th October, Thursday - Public viewing night at Briars
- 10th October, Tuesday - Derinya Park Primary night at the Briars
Start 8:00pm, 85 11-12 year olds, 6 scopes required.
- 14th October, Saturday - Presidents Birthday Bash
Details to be advised. Contact Don (5985 4927) or Peter (0419 355 819) for further information.
- 18th October, Wednesday - Session 1 : Speaker: Jim Blanksby. "North African Solar Eclipse March 2006"
Session 2 : Video - Video: "Space – The Final Junkyard"
Session 3 : Open forum and *Sky for the Month*

Join the E-scorpis newsgroup

The MPAS has an online newsgroup called E-Scorpius. Here you will be kept up to date with the latest MPAS news and event information as well as being able join in discussions and ask questions with other members. To join go to <http://groups.yahoo.com/> and sign up to Yahoo groups. You require to sign up to Yahoo groups to join E-Scorpius. Once you have signed up at Yahoo Groups, email skywatch@iprimus.com.au saying that you want to join E-Scorpius and you will be added to the E-Scorpius list. Come on, join up. The more people in the group the better.

Contributions to Scorpius

If you would like to submit an article or written contribution to Scorpius then please send your submission to MPAS, PO BOX 596, Frankston, Vic, 3198 or email to quasar3671@aapt.net.au (Attn : Marty Rudd).

Any astronomical events that you have witnessed or tales you would like to tell, things you have for sale (eg : telescopes, eyepieces etc.) then please send them in. All contributions are welcome.

Important Notice About Membership Payments

For those of us who deal with the banks every day, security is now one of their main priorities. Having said that, I am now having trouble depositing membership renewal cheques that are not 'completed correctly'. I have been told that membership payment cheques that are filled out to the 'M.P.A.S' will no longer be accepted as that is not the name of the account that the cheques are deposited into.

I must ask then that if a member is paying their membership by personal cheque or postal cheque, then that all future membership cheque payments be made out in full to the **Mornington Peninsula Astronomical Society**. I pleaded a case to the bank that many members abbreviate the name, as it is understandably a long name to have to write on a cheque; and applied for an allowance for members to sign cheques in the abbreviated form of **M.P.A.S**. Apparently another company somewhere in Australia has an abbreviated name 'similar' to M.P.A.S, so my application for abbreviated cheque signing was denied.

Once again, I ask then that if a member is paying for a membership by cheque then that they please make the cheque payable to the **Mornington Peninsula Astronomical Society**. Sorry for any inconvenience that this imposes.

Marty Rudd (Treasurer M.P.A.S. – sorry – Mornington Peninsula Astronomical Society)

Committee Elections

Have you considered joining the society committee?

The MPAS operates because we have a committee of management responsible for the general operation of the society. We're always on the look out for interested persons who can contribute to the society's success.

MPAS committee is structured under the constitution and has a number of specific officer positions together with a number of general committee members. Each committee member takes responsibility for handling some aspect of the society's business. The President and Vice President are responsible for the general planning and operation of the Society's business and represent the society to the members, other societies and the general public. The Secretary is the formal contact point of all formal society business and maintains the records of the society. The Treasurer monitors the society financial status and handles the various money transactions required. Other committee members provide logistical support for the various society activities & development programs. These include :

- Developing the forward society calendar of activities including speakers for the general meetings and special events both social and astronomical.
- The building sub-committee is responsible for the construction of the Briars shed.
- Handling and planning school viewing nights
- Preparing the "What's On" handouts for members.
- Publishing the Scorpius and managing the E-Scorpius internet chat room.
- Maintaining the publicity and public notices we require to keep the general public apprised of our activities.
- Developing and creating the library.

Without this group of dedicated supporters the society would definitely slow down.

If you feel you would like to get involved in the society business or have a particular skill you think would be useful to the society as a whole please give some thought to becoming a committee member.

The Annual General Meeting will be held in November 2006. In this edition of Scorpius, there is a 'Committee Election Form' (which can be posted to the MPAS PO BOX) that can be used for the submission of nominations for the next committee. Nominations can also be submitted directly to the secretary by stating which position on committee you would like to nominate for.

MPAS Inc. Annual General Meeting (AGM) Elections

Nominee: _____

Proposer: _____

Secunder: _____

} must be current
financial members

Position (tick 1 or more^{***}):

Office Bearers: President Vice President Treasurer Secretary

Ordinaries: Public Officer Ordinary Committee Member (5 of these)

Acceptance Signature of Nominee: _____ **Submit 1 day prior to AGM**

^{***} *Note that one person cannot nominate for multiple Office Bearer positions.*

Mornington Peninsula Astronomical Soc. Inc. Tent. CALENDAR 2007 P is Public Holiday • New Moon • Full MC

January	February	March	April	May	June	July	August	September	October	November	December
1 M Scorp. decl. line	1 P Th Public Night	1 Th Scorp. decl. line	1 Su Public Night	1 T Scorp. decl. line	1 F Public Night	1 Su Scorp. decl. line	1 W Th	1 S Scorp. decl. line	1 M T	1 Th Scorp. decl. line	1 S
2 T Earth Perihelion	2 F Pub T'scope Learning Day	2 F Public Night	2 M Public Night	2 W Public Night	2 S Su	2 M T	2 Th F Public Night	2 Su Fathers Day	2 T W	2 F Public Night	2 Su
3 W Public Night	3 S Su	3 S Su	3 T W	3 Th F Public Night	3 M T	3 W Th	3 F S	3 M T	3 W Th	3 S Su	3 M
4 Th Earth Perihelion	4 M Su	4 M Su	4 W Th	4 F Public Night	4 T W	4 Th W	4 S Su	4 W T	4 F Public Night	4 M Su	4 T
5 F Public Night	5 T M	5 T M	5 W Th	5 Th S	5 F W	5 S Th	5 M T	5 W Th	5 F S	5 T P	5 W
6 S Public Night	6 W T	6 W T	6 Th F	6 F M	6 S Th	6 S Su	6 M T	6 W Th	6 F S	6 W T	6 Th
7 Su Public Night	7 Th W	7 Th W	7 F S	7 M T	7 F S	7 S Su	7 W Th	7 Su F Public Night	7 M T	7 W T	7 F
8 M Public Night	8 F Th	8 F Th	8 M Su	8 T W	8 F S	8 S Su	8 W Th	8 S Su	8 M T	8 W Th	8 S
9 T Public Night	9 S F	9 S F	9 W M	9 Th W	9 F S	9 S M	9 Th W	9 Su Su	9 T F	9 W F	9 Su
10 W Public Night	10 Th S	10 Th S	10 F T	10 M Th	10 S M	10 S T	10 W F	10 M M	10 W W	10 S S Members Nt	10 M
11 Th Public Night	11 F Su	11 F Su	11 M W	11 T F	11 F M	11 S W	11 M S	11 W T	11 T Th	11 W Su	11 T
12 F Public Night	12 S M	12 S M	12 W Th	12 Th S	12 F T	12 S Th	12 M Su	12 W W	12 T F	12 W M	12 W
13 S Public Night	13 Th T	13 Th T	13 F F	13 M Su	13 S W	13 S F	13 M M	13 W Th	13 T S Members Nt	13 W T	13 Th
14 Su Public Night	14 F W	14 F W	14 M S	14 T M	14 F Th	14 S S	14 M T	14 W F	14 T Su	14 W W	14 F
15 M Public Night	15 Th Th	15 Th Th	15 F Su	15 M T	15 S F	15 S Su	15 W W	15 M S Members Nt	15 T M	15 W Th	15 S
16 T Public Night	16 F F	16 F F	16 M M	16 T W	16 F S	16 S M	16 M Th	16 W Su	16 T T	16 W F	16 Su
17 W Public Night	17 S S Members Nt	17 S S	17 W T	17 Th F	17 F Su	17 S T	17 M F	17 W M	17 T W	17 W S Lunar Nt Leonids	17 M
18 Th Public Night	18 F Su	18 F Su	18 M W	18 T M	18 F M	18 S W	18 M S Members Nt	18 W T	18 T Th	18 W Su Meteor Shower	18 T
19 F Public Night	19 S M	19 S M	19 W Th	19 Th S	19 F T	19 S F	19 M Su	19 W W	19 T F	19 W M	19 W
20 S Public Night	20 Th T	20 Th T	20 F F	20 M Su	20 S W	20 S T	20 M M	20 W Th	20 T S President's Birthday Nt	20 W T	20 Th
21 Su Public Night	21 F W	21 F W	21 M S	21 T M	21 F Th	21 S S	21 M F	21 W F	21 T Su Orionids peak	21 W W Annual Gen. Meeting	21 F
22 M Public Night	22 Th Th	22 Th Th	22 F Su	22 M T	22 S F	22 S Su	22 W W	22 M S	22 T M	22 W Th	22 S
23 T Public Night	23 F F	23 F F	23 M M	23 T W	23 F M	23 S M	23 M Th	23 W Su	23 T T	23 W F	23 Su
24 W Public Night	24 S S	24 S S	24 W T	24 Th Th	24 F T	24 S T	24 M F	24 W M	24 T W	24 W S Members Nt	24 M
25 Th Public Night	25 F Su	25 F Su	25 M W	25 T F	25 F M	25 S W	25 M S	25 W T	25 T Th	25 W Su	25 P
26 F Public Night	26 S M	26 S M	26 W Th	26 Th S	26 F T	26 S Th	26 M Su	26 W W	26 T F	26 W M	26 P
27 S Public Night	27 Th T	27 Th T	27 F F	27 M Su	27 S W	27 S F	27 M M	27 W Th	27 T S Members Nt	27 W O	27 W
28 Su Public Night	28 F W	28 F W	28 M S	28 T M	28 F Th	28 S S	28 M T	28 W Th	28 T W	28 W T	28 Th
29 M Public Night	29 Th Th	29 Th Th	29 F Su	29 M T	29 S W	29 S Su	29 M W	29 W S	29 T M	29 W Th	29 S
30 T Public Night	30 F F	30 F F	30 M M	30 T W	30 F S	30 S M	30 M Th	30 W Su	30 T T	30 W F	30 Su
31 W Public Night	31 Th S	31 Th S	31 F T	31 M Th	31 S F	31 S T	31 M F	31 W W	31 T W	31 W M	31 M

General Meetings are held at 8 pm at the Peninsula School, Wooralla Dr, Mt Eliza - Melway 105 F5 (drive to Senior School at rear). Library at Peninsula School is open on General Meeting nights for borrowing by members. Members and Special nights, and available Fri & Sat, are for sky viewing at MPAS Viewing Site 'The Briers' Nepean Hwy Mt Martha - Melway 145 F12. Confirm with Greg Walton 0415 172 503

State School Holidays

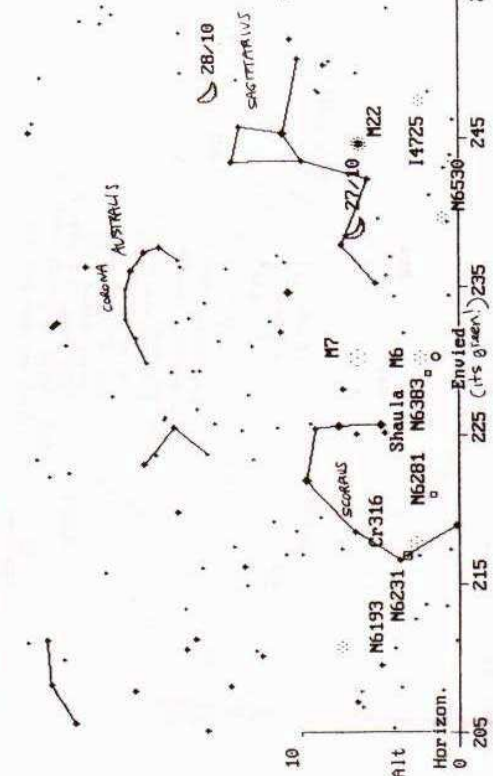
Public Nights for sky viewing are held at The Briers' MPAS Viewing Site (Melway 145 F12) at 8 pm all year. Booking is preferred, but not essential. School and Community Group Nights can be arranged as Society has telescopes and will travel. For all of the above - bookings and enquiries, phone 0419 253 252

A Quiet night at the Briars 16 Sep 2006

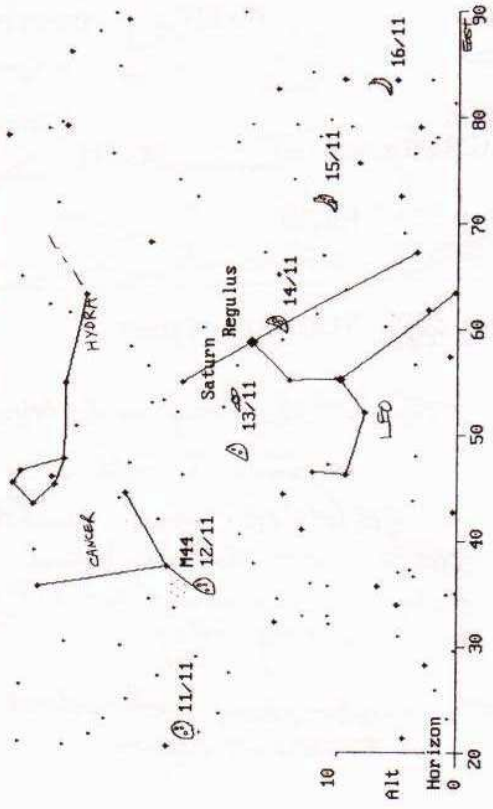


SKY FOR THE MONTH 18 OCTOBER TO 14 NOVEMBER MORNINGTON PENINSULA

EMULID 11 55 pm Dark Sky 31 October 2006 Standard Time
 Faintest object is mag 5.5 U1.00 (c) Bob Heale 13/1/03



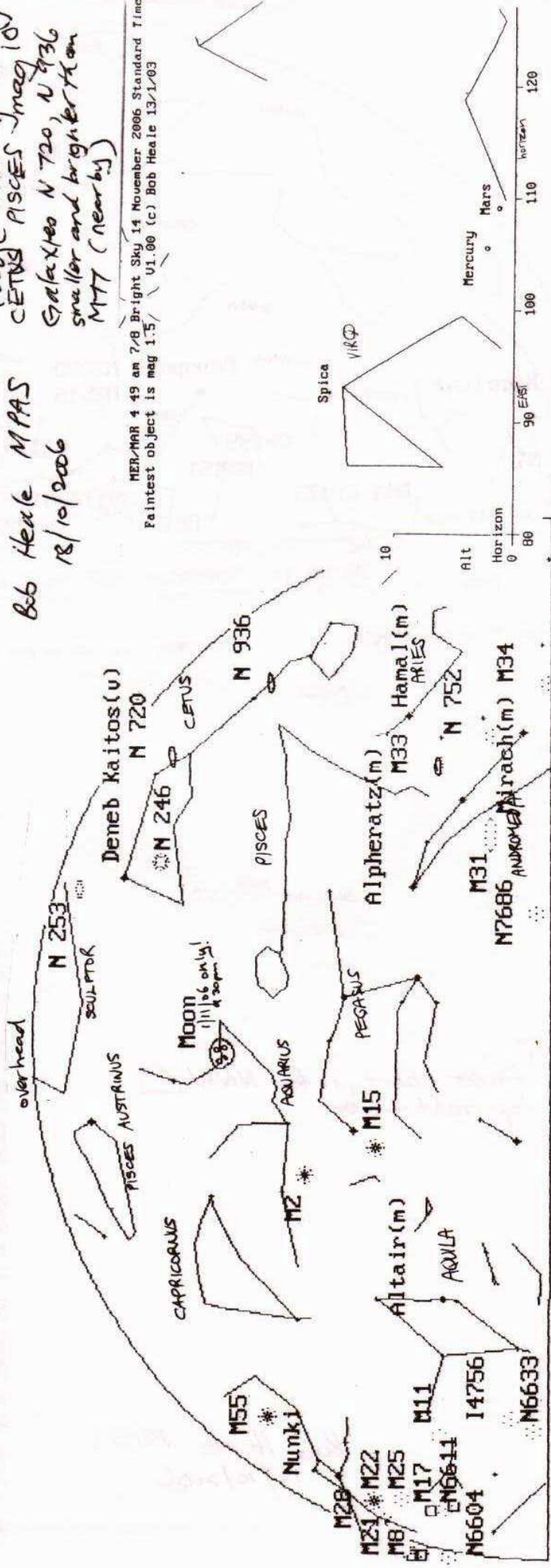
SATURN 3 14 am Dark Sky 13 November 2006 Standard Time
 Faintest object is mag 5.5 U1.00 (c) Bob Heale 13/1/03



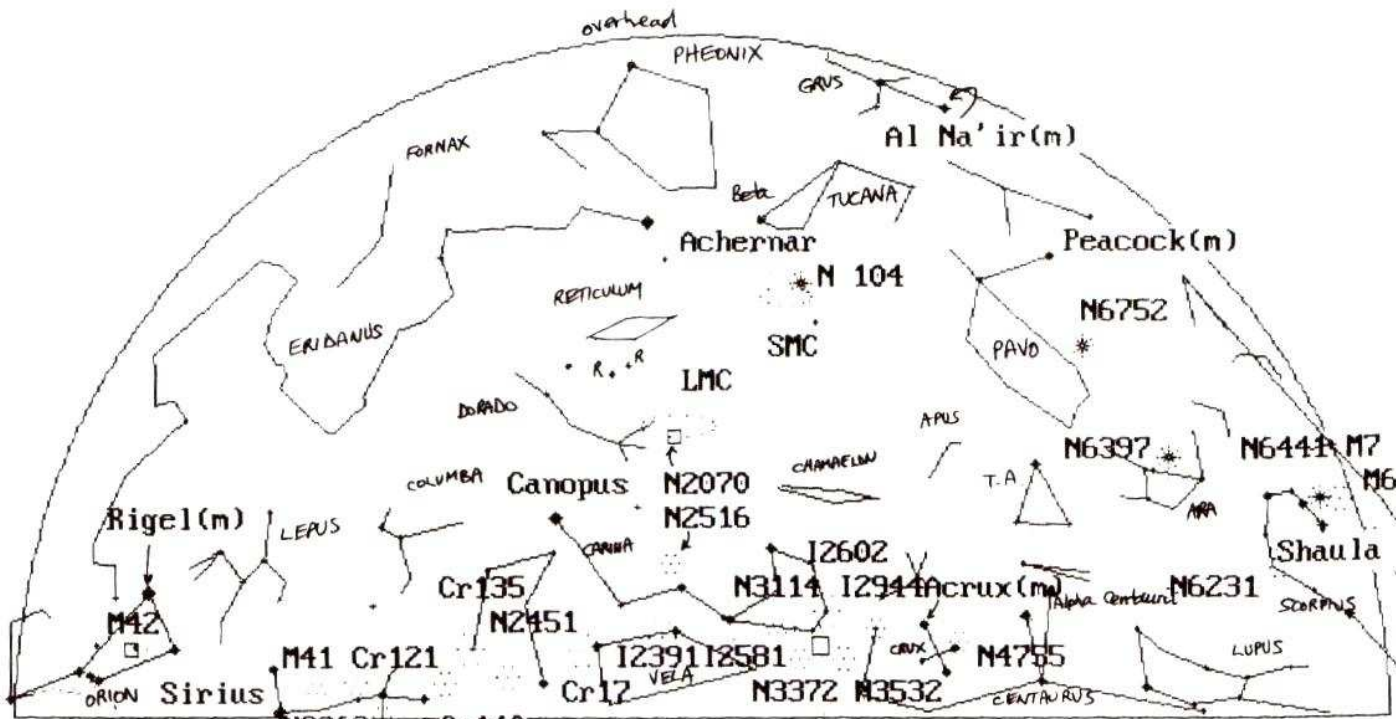
Don't forget
 Mercury transit
 (of Sun) 9 Nov 2006
 ~ 5am to 10am
 in a totally LOW! due
 east - do not allow
 people nearby to look
 in correctly
 Mercury - such a clever
 planet - continues on
 to get closer to Mars
 (4/11 in bright sky and
 Low!
 To keep your eyes
 'pure' - Comet 4P
 Faye moving through
 CETUS PISCES mag 10.5
 Galaxias N 720, N 936
 smaller and brighter than
 M77 (Nearby)

Bob Heale MPAS
 18/10/2006

MER-MAR 4 49 am 7.8 Bright Sky 14 November 2006 Standard Time
 Faintest object is mag 1.5 U1.00 (c) Bob Heale 13/1/03

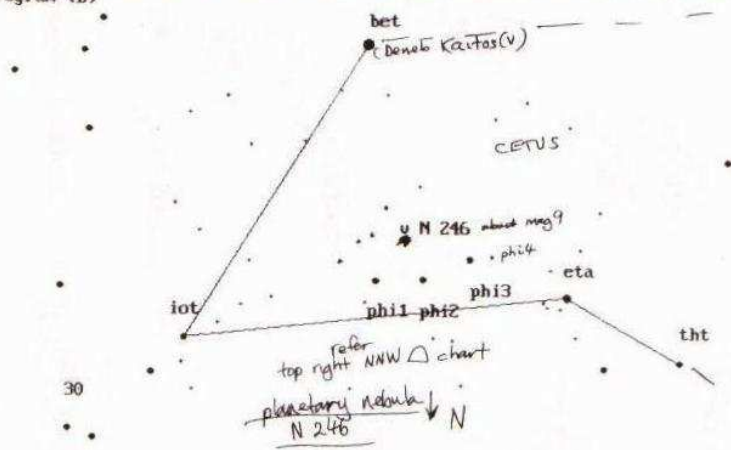


Also 10 30 pm 18 October and 8 30 pm 14 November



Also 9 30 pm 1st November SSE Dark Sky 2006 Standard Times
 10 30pm 18th October and 14th November 8 30pm

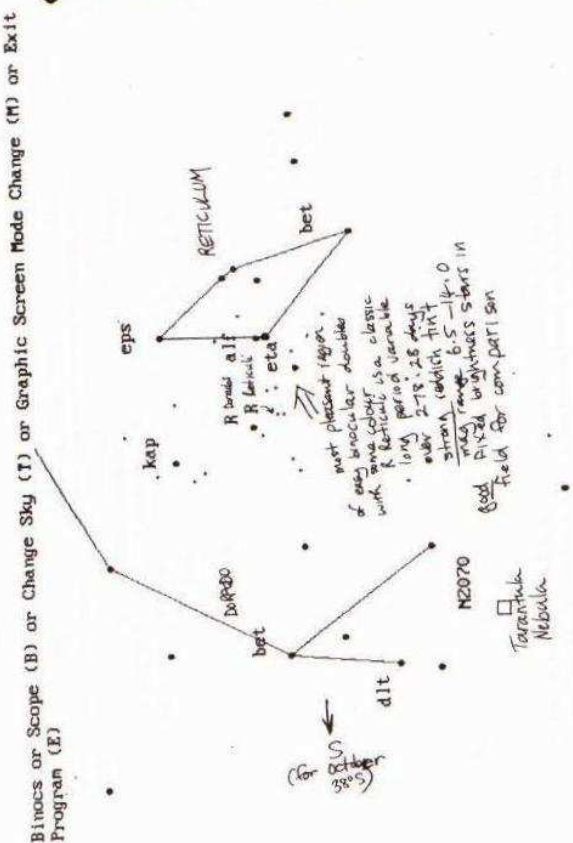
Binocs or Scope (B) or Change Sky (T) or Graphic Screen Mode Change (M) or Exit Program (E)



This finder chart, refer NNW Δ chart top right - over

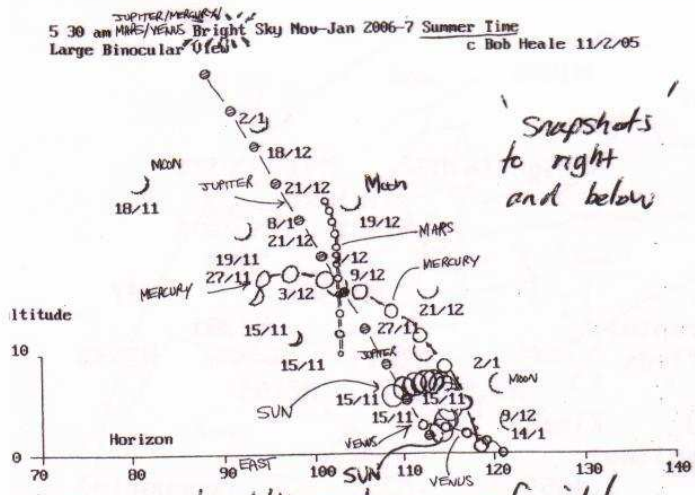
The Milky Way is bottoming right across South sky - so its galaxies and multiple stars, comets (one) and only one planet is rising in Morning sky

This finder chart, refer above ↓ in RETICULUM region



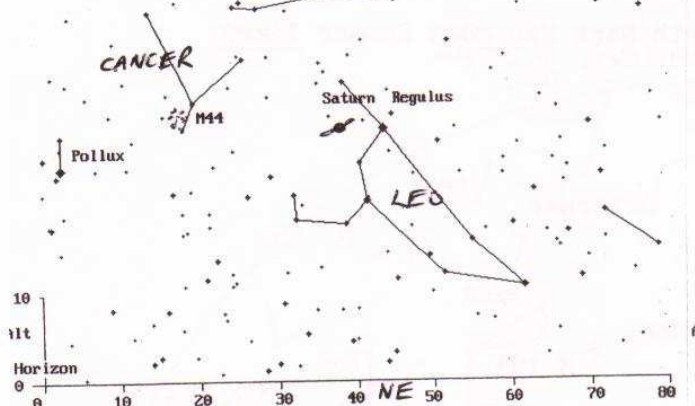
Bob Heale MPAS
 18/10/2006

SKY FOR PERIOD 15TH NOVEMBER 2006 TO 16TH JANUARY 2007 MORNINGTON PENINSULA

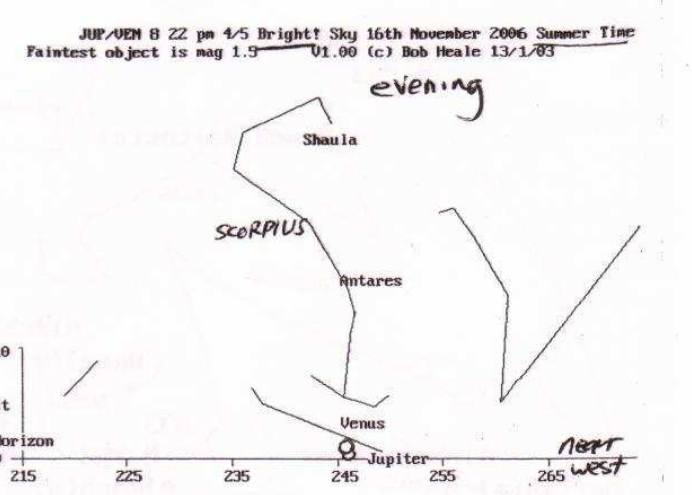


Choose your planet/Moon above - go for it!

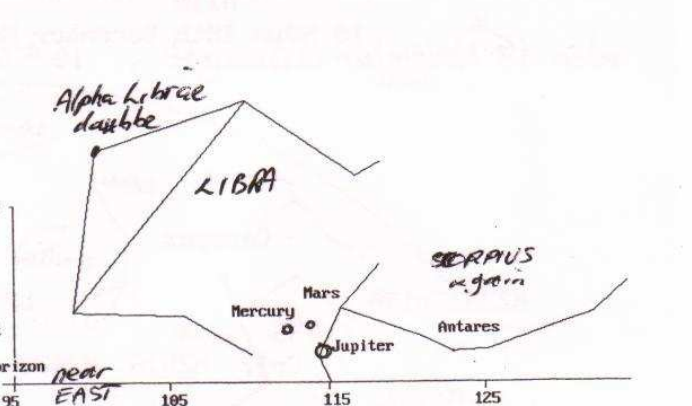
SATURN 3 55 am Dark Sky 6th December 2007 Summer Time
Faintest object is mag 5.5 U1.00 (c) Bob Heale 13/1/03



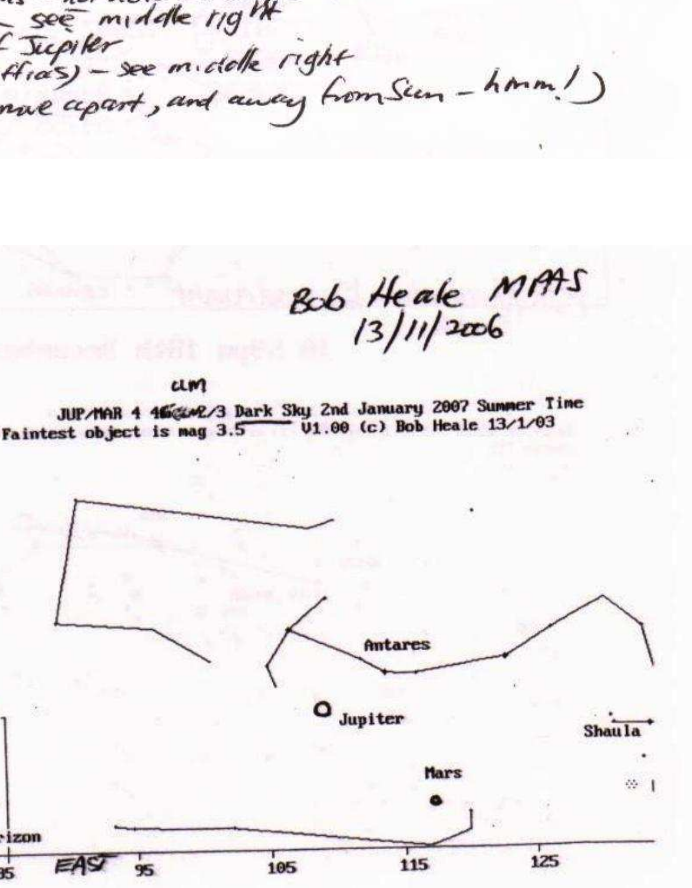
- 16/11/2006 Venus passes South edge of Jupiter see top right
- 22/11/2006 Moon passes? South edge of Antares - not done as snapshot - see software
- 9/12/2006 Saturn VERY! Stationary west of Regulus - not done as snapshot here
- 10-12/12/2006 Jupiter Mars Mercury very close - see middle right
- 11/12/2006 Mercury occults/passes North edge of Jupiter
- 8-10/12/2006 Jupiter occults? Beta Scorpi (Grattias) - see middle right
- (I will be pleased/glad/relieved when planets move apart, and away from Sun - hmmm!)



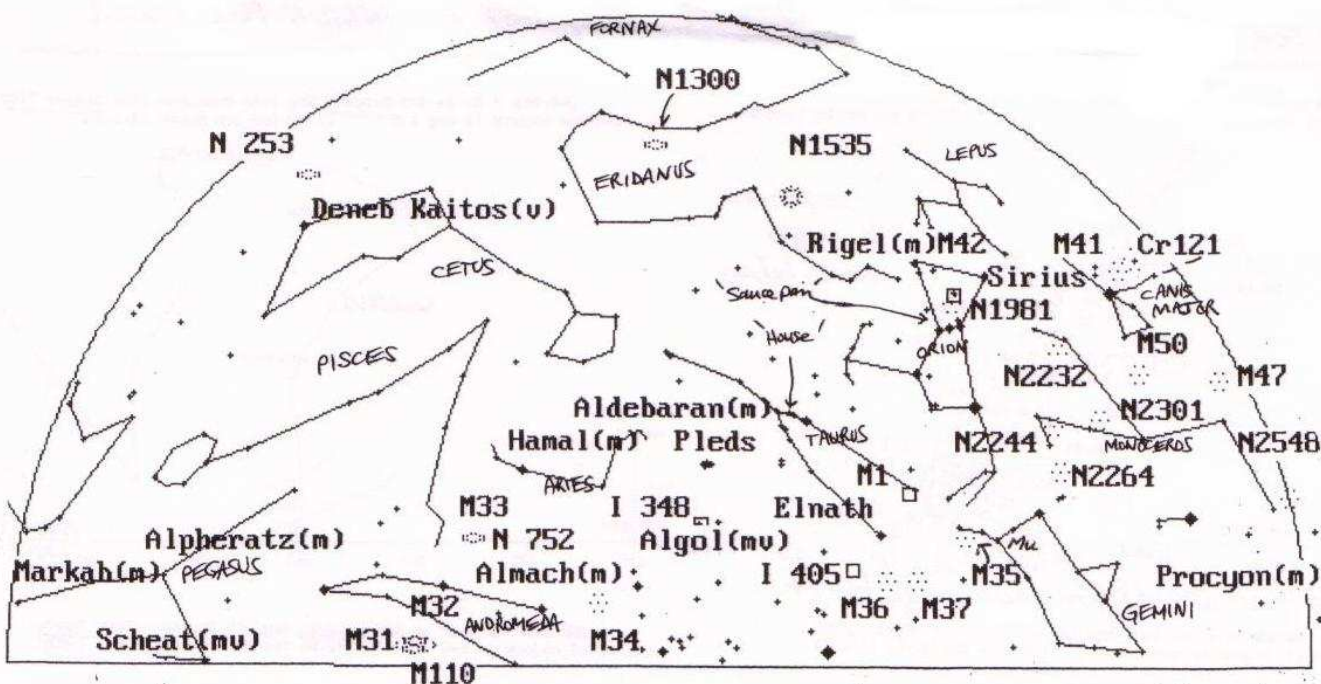
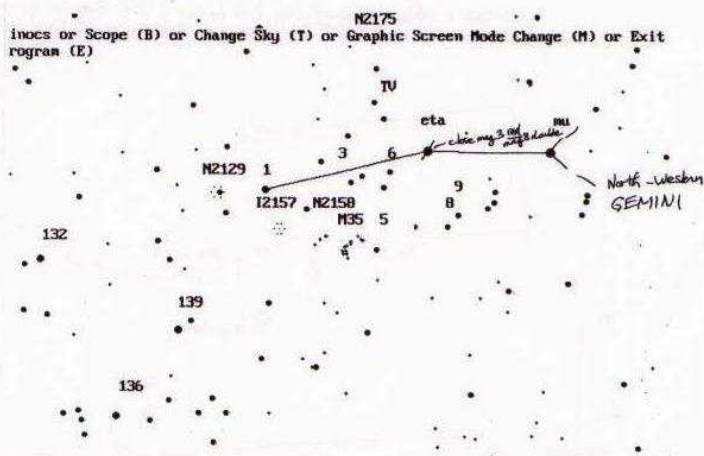
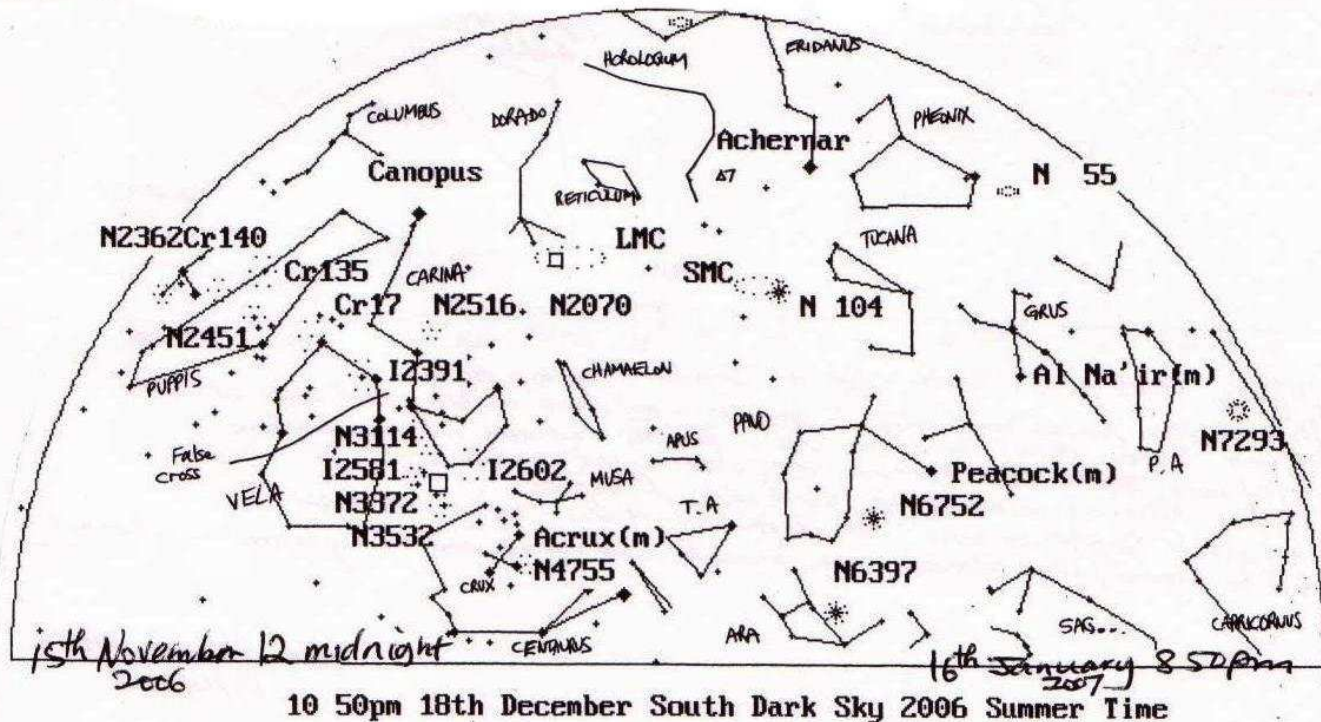
JUP/MAR/MER 5 15 am 2/3 BRIGHT! Sky 9th December 2006 Summer Time
Faintest object is mag 1.5 U1.00 (c) Bob Heale 13/1/03



JUP/MAR 4 16 23 Dark Sky 2nd January 2007 Summer Time
Faintest object is mag 3.5 U1.00 (c) Bob Heale 13/1/03



Bob Heale MAAS
13/11/2006



also 15th November 10 50pm 18th December North Dark Sky 2006 Summer Time
 2006 12 midnight, 16th January 8 50pm 2007